

Remarks

Entry of the foregoing and reconsideration of the application identified in caption as amended, pursuant to and consistent with the Rules of Practice in Patent Cases, and in light of the remarks which follow, is respectfully requested.

By the present amendment, claims 1-14 have been amended and new claims 16-17 have been added, so that claims 1-14, 16, and 17 will be pending upon entry of the present amendment.

Claims 2-14 stand rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. This rejection is respectfully traversed.

The present claims have been amended to replace the language “characterized in that” with the preferred term “wherein” in order to conform foreign originated claim terms to U.S. practice. Accordingly, the scope of the claims has not been limited by such amendment.

Claims 9 and 12 have each been amended to delete the narrower weight percentage range, which subject matter has been presented in new claims 16 and 17, respectively. This amendment points out that the narrower range was not intended to limit the broader range in the original claim, but rather to depend from the claim which includes the broader range.

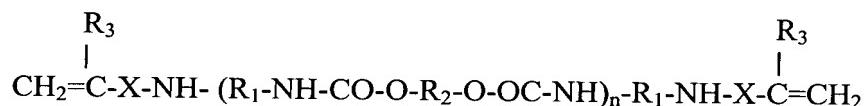
Accordingly, withdrawal of the record rejection under 35 U.S.C. § 112, second paragraph, is respectfully requested. Additionally, the language “stands for” has been replaced by the preferred term “is” in compliance with the Examiner’s observation/suggestion.

Claims 1-14, now represented by claims 1-14, 16, and 17, stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,110,184 to Dart et al. (“Dart”). This rejection is respectfully traversed.

Dental materials of the present invention containing acidic polymerizable monomers are advantageous in that they increase the bonding between the dental material and the tooth surface. For this reason, acidic polymerizable monomers are often used in adhesives (see page 15, second paragraph and page 31, Example 8 of the present application).

One disadvantage typically associated with acidic monomers is that they impair the stability of other components of the material such as comonomers. The present inventors unexpectedly discovered that amides according to formula BX_n of the present invention are highly hydrolysis resistant and can therefore advantageously be combined with acidic monomers. The hydrolysis stability of the amides of the present invention is illustrated by the comparison data shown in Example 7 at page 28 of the present application. Dental materials containing such amides according to formula BX_n and at least one acidic polymerizable monomer are not disclosed or suggested by the prior art.

The Examiner has taken the position that the subject matter of the present invention is anticipated by Dart. This document discloses dental filling compositions which include (a) an inorganic particulate filler and (b) a polymerizable material containing a polymerizable prepolymer. These prepolymers are the reaction product of a urethane prepolymer which may have a structure as shown in column 6, lines 43 to 47, Formula II of Dart. As can be seen from Formula II of Dart, the prepolymers contain urethane groups -O-OC-NH-:



By deleting the group -O-CO-NH- in the recitation of residue B, urethane prepolymers have been excluded from the scope of claim 1 and, therefore, the subject matter of claim 1 as amended is not disclosed or suggested by Dart. The present invention provides a novel class of compounds having high hydrolysis stability in the presence of acidic monomers. Such compounds are not disclosed or suggested by the prior art.

The presently claimed amides are also not obvious from Dart since Dart is limited to urethane prepolymers. Dart do not mention or recognize hydrolysis stability and, therefore, a skilled person interested in the preparation of stable dental materials including acidic monomers and polymerizable monomers would not have chosen Dart as a starting point.

The remaining references are cited to show the state of the art and likewise fail to disclose or suggest the present invention for at least the following reasons. U.S. Patent No. 6,506,816 to Ario et al. discloses dental resin cement materials which may contain methylene

bis-acrylamide and methylene bix-methacrylamide (column 7, lines 54 to 55). However, this document does not disclose dental materials which, in addition to these amides contain acidic monomers. Furthermore, it should be noted that methylene bis-acrylamide and methylene bis-methacrylamide are only two of numerous monomers mentioned in this document.

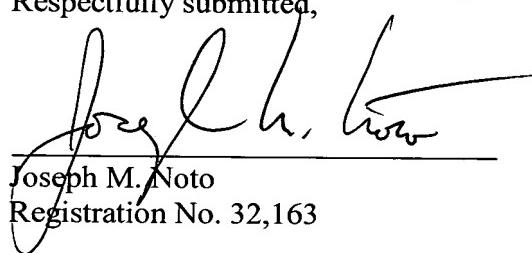
U.S. Patent No. 6,503,958 to Hughes et al. discloses porous polymers on the basis of dihydrogenperfluoroalkyl acrylates and methacrylates (column 1, lines 6 to 8) and optionally comonomers such as methylene bis-acrylamide or methylene bis-methacrylamide, ethylene bis-acrylamide or ethylene bis-acrylamide (column 6, lines 54 to 55). Dental materials including these compounds are not disclosed, let alone dental materials including these amides in combination with acidic monomers.

U.S. Patent No. 5,154,762 to Mitra et al. discloses dental cements containing water, acid-reactive filler, water-miscible acidic polymer, an ethylenically-unsaturated moiety, photoinitiator, water-soluble reducing agent and water-soluble oxidizing agent. The compositions may contain ethylenically-unsaturated compounds including methylene bis-acrylamide or methacrylamide as a separate ingredient (column 3, lines 39 to 40), preferably however, ethylenically-unsaturated moieties are present as groups on the acidic polymer (column 3, lines 43 to 45). Combinations of amide according to formula BX_n and at least one acidic polymerizable monomer are not taught or suggested by this document.

Accordingly, withdrawal of the record rejection under Dart and allowance of claims 1-14, 16, and 17 are respectfully requested.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is hereby earnestly solicited.

Respectfully submitted,


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Sept. 16, 2003 Ruth R. Smith
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